Rocks and Minerals

PUBLISHED MONTHLY

Edited and Published by PETER ZODAC

November 1940

Contents for November, 1940

CHIPS FROM THE QUARRY 362
BERMUDA, A PRODUCT OF THE ICE AGE. *By C. M. Allen*..... 363
STATEMENT OF OWNERSHIP 368
A TALC QUARRY NEAR CHESTER, VERMONT. *By Peter Zodac* 369
MORSE HAS SUCCESSFUL FIELD TRIP 371
A PLEA FOR THE DESERT. *By Mrs. Edith McLeod* 372
RECENT FINDS OF INTEREST 375
A CHLOROPHANE OCCURRENCE NEAR EAST HAMPTON, CONN. *By Peter Zodac* 376
MARYLAND EXPEDITION YIELDS 1,000 SPECIMENS 377
A MESOLITE LOCALITY IN OREGON 378
NEW SOUND FILMS ILLUSTRATE ALLOY STEELS AND ARIZONA MINERAL RESOURCES 379
GYPSUM CRYSTALS FROM VICKSBURG, MISSISSIPPI. *By Dr. A. C. Hawkins* 380
MANY MINERALS USED IN WELDING 381
A SELENITE LOCALITY IN MARYLAND 382
J. WILLARD BAKER (Obituary Notice) 382
NEW ENGLAND NOTES. *Conducted by Rudolf C. B. Bartsch* 383
BIBLIOGRAPHICAL NOTES 384
COLLECTOR'S KINKS. A Unique Crystal Mount 385
COLLECTORS' TALES. (Mineralogy has charms). *By Peter Zodac*.... 386
CLUB AND SOCIETY NOTES. Plainfield Mineralogical Society..... 386
INDEX TO ADVERTISERS ..... Third Cover

Entered as second-class matter September 13, 1926, at the Post Office at Peekskill, N. Y., under the Act of March 3, 1879.

Copyright 1940 by Peter Zodac Title registered in U. S. Patent Office

Specially written articles (as contributions) are desired.

Subscription price $2.00 a year; Current numbers, 25c a copy. No responsibility is assumed for subscriptions paid to agents and it is best to remit direct to the Publisher.

Issued on the 1st day of each month.

Authors alone are responsible for statement made and opinions expressed in their respective articles.

ROCKS and MINERALS PEEKSKILL, N. Y., U. S. A.

The Official Journal of the Rocks and Minerals Association

Chips From The Quarry

How Not to Write Articles.

The editing of ROCKS AND MINERALS is no easy matter. It requires a broad knowledge of mineralogy and all its branches, a wide acquaintance with mineral localities and collectors, a large collection of rocks and minerals, and a large collection of published reports and books on the subject.

As ROCKS AND MINERALS is a copyrighted magazine whose title is registered in the United States Patent Office, we have endeavored and will continue to print articles that are of value, interest and a contribution to mineralogical literature. Our pages are open to anyone who may care to send us contributions whether short notes or long articles, providing of course that these meet with our requirements.

There are three types of articles which have proved of great annoyance to us. The first is that which has been copied word for word from some book or magazine and then submitted as something new. These are generally spotted through means of our large library and thrown away.

The second is that which has been prepared by an amateur, who, after reading a treatise on gems, for example, writes an article on the subject in his own words. Such articles have no value in mineralogical literature, even though written in excellent style, and are easily detected. When an amateur starts experimenting with a subject which is way over his head he makes many glaring errors.

The third, and to us the most serious, is that article which is a real contribution to mineralogy but whose author has prepared two or more copies, and distributed them among various magazines. When a copyrighted magazine prints, in good faith, an article which it believes is entirely its own and then finds that another publication has printed, the same article word for word the same month, then there is bound to be a lot of embarrassment, annoyance and distress all around. Further, the contributor is injuring his reputation and dealing unfairly with the editors to whom his manifold copy has been submitted.

In the preparation of articles for ROCKS AND MINERALS, please bear these instructions in mind:

1—Write them on one side of the paper, typewritten if possible, leaving a *space* between lines. Thus if any corrections are to be made, the space so left furnishes the room.

2—Make two copies of each article; send the original to us and *keep* the duplicate for *your* files.

3—Be sure that names of individuals, localities, counties, rivers, mountains and other important sites are *clearly* written or typed so that there will be no doubt in our minds how they should be spelled.

(Continued on page 386)

ROCKS and MINERALS

PUBLISHED MONTHLY

Edited and Published by PETER ZODAC

November 1940

Vol. 15, No. 11

The Official Journal of the ROCKS and MINERALS ASSOCIATION

Whole No. 112

BERMUDA
A Product Of The Ice Age

By C. M. ALLEN

To many who think of Bermuda as merely a group of semi-tropical coral islands, it will come as a surprise to know that they are not true coral islands and that their existence was made possible by the Ice Age.

In Tertiary or possibly pre-Tertiary times a great submarine eruption along a crack in the floor of the Atlantic threw up the first Bermudas. The first island, or islands, towered far above the ancient Atlantic, the darkness of its basaltic mountains emphasized by the plumes of steam and vapor from craters and fumaroles,—a somber and forbidding land that muttered with the voice of forces from deep within the earth—all this in strange contrast to the bright and peaceful Bermuda of today.

We have little first hand knowledge of this ancient Bermuda, but from an unsuccessful boring for water and from pebbles brought up in dredging we know the type of rock of which it was made, and by projecting the slope of its base from soundings we arrive at a possible height above the sea of over eleven thousand feet. This figure is based on the supposition that there was only one central volcanic cone but it is more than likely that there were at least two or three in line, in which case the altitude would have been nearer six or seven thousand feet. The rock fragments brought up from the boring show that the mountains were made up of many layers of lavas, all of much the same basaltic type, interspaced with gravels and sands. The upper part showed oxidation which could not take place under water. As oxidation is a slow process we know that the first Bermuda stood for a long time above the sea. Even before the building up was completed the tearing down was under way and through thousands of years the relentless erosive power of the sea worked, until finally the last prinacle of the ancient volanic island disappeared beneath the sea, never to reappear in its original form The erosion did not stop here but went on until all that was left was a level platform some thirty miles long by ten miles wide, and to the southwest two smaller platforms, the remains of subsiduary cones. The erosion ceased when it reached about two hundred and fifty feet below sea level, as below this depth sea has little erosive power. Thus the platform on which the modern Bermuda was built was completed in all probability many millions of years before the first man trod upon this earth.

Ice Age Brought Many Changes

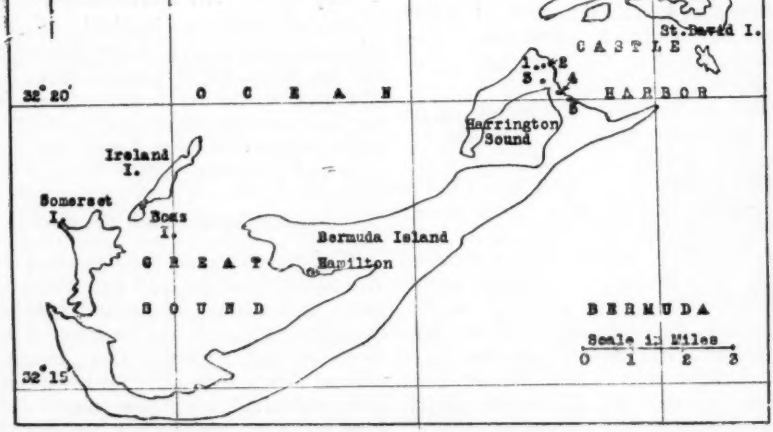
With the coming of the Pleistocene Ice Age about a million years ago, the enormous accumulation of ice and snow at the Poles resulted in the lowering of the level of the oceans. This lowering reached a maximum of at least two hundred and sixty feet below the present level. The Ice Age was not one long advance and then slow retreat of the Ice Cap but was made up of several advances and retreats. With each advance, or glacial period, the oceans were lowered and at the same time there was a marked climatic change, characterized by high

winds and lowered temperature in the vicinity of Bermuda. With each retreat, or inter-glacial period, there were the same marked changes in reverse—higher ocean levels and milder climate. These were not sudden changes nor uniform in length, but took place over a long period of time. One and possibly two of the interglacial phases lasted well over two hundred thousand years. It has been only about twenty-five thousand years since the last glacial advance and it is quite possible that we are now living in an interglacial period with a further advance of the ice to come at some date far in the future.

As the level of the Atlantic fell during the first glacial period the Bermuda platform, already covered by a mantle of calcareous debris from marine growths, was exposed. This loosely consolidated limestone together with part of the original igneous platform was quickly eroded to a coarse sand. The cold climate prevented the rapid growth of vegetation and the strong winds of that time blew these sands into high dunes. Bermuda then was merely an inhospitable bar of shifting sand far out in the stormy Atlantic.

Ancient Bermuda

With the coming of the first interglacial period we get our first glimpse of the Bermuda of today. As the Ice Caps melted, the sea slowly rose again to about its present level but did not cover the tops of the high dunes, the climate became mild and was probably not unlike that of today. The dunes were in time covered by a sparse vegetation which to a large extent prevented their further movement, and rain water, with its slight carbon dioxide content, cemented the sands into the eolian sandstone from which most Bermuda houses are built. On those parts of the platform covered by the now warmer sea, corals and other



The Bermuda Islands consist of over 100 islands of which the majority are uninhabited. The most important are Bermuda, Somerset, Ireland, St. George, St. David, and Boaz. The following localities are shown on above map:

1—Admiral's Cave
2—Joyces Cave
3—Crystal Cave
4—Government Quarry
5—Chalk Cave
6—Collophanite Locality

marine forms, both animal and vegetable, grew in great profusion, layer on layer, the living on the dead, in an endeavor to keep pace with the rising sea, as sunlight was essential to their growth. During this period rain water slowly dissolved the soluble calcium carbonate of the surface rock which gradually reduced the elevation of the land, but the period was not long enough for its reduction to sea level. The less soluble portion of the rock, together with wind-blown dust and humus from the decaying vegetable matter, gradually built up a soil which was very thin on the hill tops but thicker where wind and gravity carried it into the hollows. With this soil came an increasingly diversified flora, including the first trees, the seeds of which were brought to the island by birds, the winds, and some by ocean currents.

From analysis of the early interglacial soils now deeply buried we know that they were of substantially the same composition as the present soils of Bermuda. From this, and our knowledge that the climate was similar, we can assume that the islands at the end of the first interglacial period, aside from being smaller and having topographical differences, were very much like the present Bermuda. The above description of the first Interglacial Period, while covering the important points, is essentially a simplification. The actual process was much more complicated; for example, we know that on at least two occasions separated by a long interval the sea levels were above that of the present and that during these high water periods marine limestones were formed. These formations are now found as much as twenty-five feet above the present levels and are separated by a thick fossil soil.

During each successive glacial and interglacial period much the same processes took place. Each time the ocean was lowered and the climate became colder the marine growth that had formed during the previous higher level was exposed, eroded to sand, then blown up into dunes covering the soil and rock of the preceding period. During each low level of the sea with its accompanying warmth a new soil was formed and new reefs were built.

In road cuttings, quarries and cliffs, we can today find these ancient interglacial soils exposed as pink and red bands which are very conspicuous in the white sandstone. In some places they are quite soft and gummy while in others where they have been long exposed they have hardened to firm rock. It is from these fossil soils that a great part of our knowledge of the Ice Age in Bermuda has been gleaned. In many places we find two or more of these soils one above the other in the same exposure. In one place there are four and a possible fifth, indicating that number of interglacial periods.

Present Bermudas

The present Bermudas consist of over a hundred islands, most of which are very small, with a large part of the nineteen square miles of land area contained in the central main island. Because of the high porosity of the sandstone rocks there are no springs or streams on the islands so that the original dune topography is largely retained. The highest elevation is about two hundred and fifty feet above sea level. The group is located in the southeastern part of the platform with a large area of flats and reefs extending to the north and west. The water on the submerged part of the platform is about sixty feet deep and dotted with shallow reefs. There is also a fairly continuous reef near the outer edge which at many places is exposed at low tide. These waters and reefs abound with an enormous variety of marine life. The present climate is semi-tropical and as before stated, is very similiar to that which existed during the interglacial periods.

The Bermuda flora is luxuriant and varied and in this connection is interesting to note that there are sixty-one species of plants that are not known to grow naturally elsewhere.

Bermuda's Minerals

Bermuda is no "happy hunting ground" for the mineralogist, unless he can find satisfaction in the many forms of the one common mineral—calcite. There is hardly a part of the islands where it is not plentiful but the best collecting place is the Government quarry. Here one is almost sure to find the mineral in crystals, stalactites, and many forms of stalagmite from the walls and floors of the numerous small caves. Some of the banded stalagmite takes a high polish and the finished product very much resembles agate. The color of all these forms varies from almost colorless through many shades of red and brown. The pigments were undoubtedly derived from the soils and cave earths. Most of the paler Bermuda calcite fluoresces a light green when exposed to ultra-violet light and phosphoresces for many seconds after the light is turned off. At another locality pebbles of collophanite are found. This phosphate rock is probably the result of the leaching of bird guano.

In the examination of the rocks and soils of the island, one of the processes was to dissolve almost all the soluble particles with acid. The residue, consisting of small grains, was found to be made up of a wide variety of minerals, most of which had their origin in the igneous platform but some could not be accounted for in this manner. One of the more important in this group is quartz which is found in well rounded grains. As all Bermuda rocks are very soft, this rounding must have taken place

General View of the Government Quarry

elsewhere. There are many theories explaining the presence of these imported minerals, one of the most interesting being that they were brought in the crops of birds. But this is still an unsolved problem.

Bermuda's Caves

Bermuda's caves are extremely beautiful and interesting, with a great variety of formations and colors. In many of the caves the floors are covered with water reaching a depth of over fifty feet. This water is so clear that the stalagmite formations rising from the bottom may be seen even in the deepest parts. As stalagmite does not form under water we know that at least a part of the cave formation took place during the Glacial Periods of low water. From their size and the fact that they are mostly located in the older rock formations we can conclude that their growth was continuous throughout a large part of the Pleistocene epoch. The caves vary greatly in size from mere crevices to rooms of more than a hundred feet square and ceiling heights of eighty or ninety feet, if we include the part under water. It is unfortunate that "Chalk" Cave, the most interesting of all the Bermuda caves from a scientific point of view, was closed a few years ago when a driveway to one of the hotels was built across its only entrance. The walls of its main room are almost entirely lined with rock-milk, an unusual form of calcite which is snow white and soft as putty. This has a marked deadening effect on sound and it is necessary to shout in order to be un-

A small cave in the Government Quarry. Note stalagmite in the opening slightly left of center

derstood at a distance of fifty feet. On the floor are found large numbers of bird bones, many of which are wholly or partly covered by stalagmite which shows their great age. In the dish-like top of a large stalagmite in one of the small side chambers there are two cave pearls about three-quarters of an inch in diameter. This rare form of calcite is well named. They are spherical and are built up of many thin layers deposited on a grain of sand that is kept in motion by moving water. When they were found there was only a slight drip from the overhanging stalactite, which was enough to keep the small pool full but not enough to move the pearls. This was during a dry season and probably at other times there is a sufficient flow to keep them from becoming cemented to the bottom. They were left in place and if the cave is again opened it will be interesting to see if they are still free.

Abbott's Cliff

Abbott's Cliff, which is located near Bailey's Bay, is strikingly similar in appearance to the Palisades of New Jersey, U. S. A., but on a very small scale as they are less than 200 feet high. They are of eolian limestone like the rest of Bermuda and are the result of undercutting by the waters of Harrington Sound on the northern side of which they are situated. There are no igneous or metamorphosed rocks exposed anywhere in the islands.

These are only a few of the many interesting facts that are known about Bermuda. Undodubtedly there are many more as yet undiscovered.

BIBLIOGRAPHY

Britton, N. L., Flora of Bermuda. Chas. Scribners & Sons, 1918.

Daly, R. A., The Changing World of The Ice Age. Yale Univ. Press, 1934; Architecture of the Earth. D. Appleton-Century Co., 1938.

Pirsson, L. V. Geology of Bermuda Island; The Igneous Platform. Am. Jour. Sci., Vol. 38, No. 225, Sept., 1914.

Sayles, R. W. Bermuda During the Ice Age. Proc. Am. Acad. Arts & Sci., Vol. 66, No. 11, Nov., 1931.

(This is by far the most important work on the geology of Bermuda and is recommended to anyone wishing a complete scientific description of the genesis of these islands.)

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of ROCKS and MINERALS published MONTHLY at PEEKSKILL, N. Y., for OCTOBER 1st, 1940, — State of New York, County of Westchester.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared PETER ZODAC, who, having been duly sworn according to law, deposes and says that he is the EDITOR and PUBLISHER of ROCKS and MINERALS and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management of the aforesaid publication for the date shown in the abo above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, to wit:

1 That the name and address of the publisher, editor, managing editor, and business manager is PETER ZODAC, PEEKSKILL, N. Y.

2. That the owner is: PETER ZODAC, PEEKSKILL, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: NONE.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affidavit's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affidavit has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

PETER ZODAC.

Sworn to and subscribed before me this 10th day of October, 1940.

H. ALBAN ANDERSON.

My commission expires March 30, 1941.

A TALC QUARRY NEAR CHESTER, VERMONT

By PETER ZODAC
Editor ROCKS and MINERALS

A locality which recently received much notoriety for the excellence of its pyrite crystals is a talc quarry near Chester, Vt. A visit paid to it in August, 1938, by the writer resulted in the finding of many interesting specimens and this brief paper will try to describe them.

HISTORY

The deposit, known as the Carlton quarry (on the Carlton farm) was opened up about 1894 for soapstone, but at present is operated for grit talc. The Vermont Mineral Products Co., Inc., is the present operator.

LOCATION

The quarry is located 2½ miles west of Chester, on Vermont Highway Route 11, and about 1500 feet north of the highway on a hillside. Chester is in the southern part of Windsor County, which county is in the southeastern part of the state. The quarry is geographically situated at 43° 15′ N. Lat., and 72° 40′ W. Long.

LAYOUT

When the writer visited the locality in 1938 the quarry was an oval shaped pit, 250x150 feet in area on the top, but grew smaller in size towards the bottom. The maximum depth was about 200 feet.

The quarried talc was hoisted to the surface by a derrick run by electric power, drawn to the Chester depot on the Rutland Railroad where it was dried, crushed, and bagged to be shipped for various uses as filler for paints, paper, cloth, rubber, plaster board, foundry facings, etc.

GEOLOGY

The strike of the deposit is approximately north and south with a steep dip to the west. The country rock is Reading gneiss which borders the quarry on the west. Between the gneiss and the talc is a narrow band of a very lustrous, highly foliated, dark green chlorite schist, locally known as "black wall"; then a smaller band of foliated talc. Both bands dip steeply to the east. The wall rock on the east has not as yet been reached in operations but a small band of "black wall" dipping steeply to the west is also present. Black wall "knots" are often found in the side walls of grit talc. A tunnel, at the bottom of the east wall, has been driven through the "black wall" and east into grit talc which lies beyond. The talcose material of the quarry proper narrows at the north end and disappears into a hard, serpentinous rock.

Jacobs' who examined the deposit speaks of the black wall thusly: "It is very soft and at times hangs down from the face of the gneiss like leaves of an open book. Moreover it is found studded with pyrite crystals (simple cubes and combination forms of cube and octahedron) sometimes an inch on the edge.'

From an examination of discarded material thrown out on the dumps from earlier operations, the rock was composed largely of actinolite crystals imbedded in foliated talc and chlorite schist. The actinolite crystals ranged in size from hairs up to ½x4". The chlorite schist shows dark brownish-black coloration merging into dark green nearest the talc. Where talc contacts the black wall, slicken-slides are conspicuous and glassy. Much talc is folded near margain of lens showing tremendous upheaval in the past.

The chlorite schist contains large crystals of pyrite, magnetite, black tourmaline and actinolite. Some specimens of rock show markings resembling asbestos fibers but the fibers are apparently talc threads as they break easily across the thread—sort of a pseudomorph after asbestos. The writer has found some extra fine specimens of foliated talc in thin layers near the margin of the lens. Recent findings of magnetite crystals average up to 5/8 of an inch on the side.

---

1 Jacobs, Elbridge Churchill—"Talc and the Talc Deposits of Vermont." Report of the State Geologist of Vermont, 1913-14, Burlington (1914), p. 414.

MINERALS

The following minerals have been found at the quarry:

Albite: White, associated with biotite; may represent a pegmatite dike.

Amphibole, var. Actinolite: Occurs in beautiful specimens as a mass of interlaced long, bladed, dark green to almost glassy crystals penetrating talc in all directions. As has already been mentioned, crystals of actinolite range in size from hairs up to ½x4 inches. Good crystals, ranging in size from tiny up to 3 inches in length, lustrous, dark green with diamond cross-section, were noted in a large talc mass from which the crystals were easily extracted. Radiating masses of fibrous actinolite, which often have to be handled carefully as the needle-like crystals may penetrate fingers, are common on the dumps. Actinolite may occur as disseminated crystals in talc, or in large platy masses which often are radiated. Talc is its chief associate. Very often, too, one end of each actinolite grades into talc.

Amphibole, var. Hornblende: Jacobs[2] reported the mineral as occurring in crystals in the black wall.

Apatite: Bright green crystal masses have been found on the dumps by R. Emmet Doherty, President of R.&M.A. The apatite was associated with gray talc and dolomite.

Biotite: Noted as loose plates on the dump; also with albite.

Calcite: White, cleavable masses imbedded in chlorite schist have been found by Arthur Jones, of Brooklyn, N. Y., during the first week of October, 1938. Tiny pyrite cubes were embedded in the calcite; also in the chlorite.

Clinochlore: Occurs as small, lustrous, greenish plates with actinolite; also in large lustrous platy masses, dark green in color which at times have a dark bluish-green luster.

Dolomite: Large smoky-gray cleavable masses of good quality in grayish talc. The dolomite so closely resembles calcite that it may at first be mistaken for that mineral. Also occurs finely crystalline of a smoky gray color.

Jacobs[3] reported that the deposit itself consisted mainly of a mixture of fine scales of foliated talc and dolomite.

Magnetite: Common in chlorite schist as sharp, lustrous black octahedrons up to ⅝ of an inch on a side. Pyrite is always associated with it. Small lustrous black octahedrons also occur embedded in gray talc associated with dolomite. In the collection of Mr. Ray Schortmann, Easthampton, Mass., is a loose pyrite cube in which are embedded small octahedrons of magnetite.

Prochlorite: Common as dark green lustrous foliated masses forming chlorite schist which is locally called "black wall." It is the matrix for a number of crystals as pyrite, magnetite, tourmaline, and hornblende. The softness of the prochlorite enables the crystals to be extracted with ease, if loose crystals are wanted.

Pyrite: This is the most spectacular mineral to occur here. It is very common and occurs in unusually sharp and lustrous cubes, combinations of cubes, and twins, and all imbedded chiefly in chlorite schist, though sometimes in gravish talc or a combination of chlorite and grayish talc. The crystals vary in size from tiny up to those one inch on the edge. The combination of color—brassy yellow for pyrite and dark green for chlorite schist—presents excellent specimens for a collector's cabinet, and especially so when specimens of the schist are studded with crystals as they frequently are. Thousands of these specimens have been distributed to collectors all over the world. These crystals are now hard to find, report many collectors who recently visited the locality.

Magnetite is the chief association of pyrite; cubes of pyrite often show crystals of magnetite imbedded in them. No pyritohedrons of pyrite are known and beveling is not as common as in some areas. Jacobs[4] reported combination form of cube and octahedron of pyrite but none were found by the writer.

2Jacobs, E. C. Work cited, p. 414.

3Jacobs, E. C. Work cited, p. 414.

4Jacobs, E. C. Work cited, p. 414.

Some of the pyrite cubes are tarnished yellow, and when in small broken crystal fragments in the schist, resemble chalcopyrite.

Pyrrhotite: Small grains seen in smoky gray crystalline dolomite. Spinel is an associate.

Quartz, var. Smoky: Occurs as vein material, sometimes transparent, gemmy, in the deposit. Thin films of pyrite were noted on some of the quartz.

Serpentine: Is present as a constituent of a hard serpentinous rock.

Spinel: Lustrous, black, small octahedrons with pyrrhotite in smoky gray crystalline dolomite.

Talc: Is the main product of the quarry and varies in quality from pure (foliated —excellent specimens) down to a mixture of talc and dolomite (impure talc—grit talc). The mineral is of a grayish to grayish-green to dark green in color and the foliated variety often imbeds actinolite crystals. The dark green talc is more compact and harder. Soapstone, which was previously quarried, is another variety of impure talc.

Tourmaline: Occurs in prochlorite as lustrous, slender, black, crystals.

ACKNOWLEDGMENT

The writer is deeply indebted to Mr. H. L. Chandler, of North Springfield, Vt., and to Mr. Atherton P. Bemis, of Chester Depot, Vt., for much valued information on the quarry.

ADDITIONAL REFERENCES

Chester, Vt., Land of Pyrite Cubes, by R. Emmet Doherty. Rocks and Minerals, July, 1936, pp. 97-98.

Collecting around Chester, Vt., by John Pierce. Rocks and Minerals, March, 1937, pp. 84-85.

MORSE HAS SUCCESSFUL FIELD TRIP

During the past summer Frank Morse, proprietor of the Colorado Gem Co., Bayfield, Colo., collected some very fine specimens of agate nodules from San Rafael Swell, Utah. The quality of the agates was so good that he is planning to revisit the locality and collect a large supply.

The trip was made accompanied by A. F. Porter and Henry Symonds, of Decorah, Iowa. They drove from Bayfield, in the southwestern part of the state, northwest to Grand Junction, Colo., in two cars, where S. D. Martin was picked up. Then the party headed north for Wamsutter, Wyo., where south of the village they collected all the turritella agate they could carry. Back again into Colorado, south to Craig, to Ladore Canyon on the Grand river, the journey continued, where they expected to find some wonderful agates (so they had been told) but not a one did they see. However, the canyon, now a national monument, is worth seeing. They continued south to Grand Junction again, and thence west to Green River, Utah.

About 8 miles southwest of Green River there is a geyser which erupts about every 40 minutes throwing ice-cold water up in the air for over 100 feet. About 25 miles further southwest from the geyser was their final destination, an agate locality on San Rafael Swell, where they collected the finest agate they had ever seen. The mineral occurred as geodes and nodules. Red petrified wood, jasperized dinosaur bones, and other interesting minerals were also found. However, all good material had long since disappeared from within walking distance of the trail, which was a very bad one. As the day was unusually hot and dry, they could not stay very long. But they are planning to return when the days become cooler.

San Rafael Swell is in the southwestern part of Emery County, which county is in the eastern part of Utah.

The following locality has been reported by Bixby:[1]

San Rafael Swell, at Temple Rock: Carnotite, uranium in sandstone with asphaltite, agatized wood, jasper, galena in sandstone, lignite.

[1]Bixby, Maynard, *Utah Minerals and Localities*, Salt Lake City, 1916, p. 5.

A PLEA FOR THE DESERT

By MRS. EDITH McLEOD

Klamath Falls, Ore.

"Come unto me all you who are weary and heavy laden and I will give you rest." Leave the city. Come out and live. You won't like it the first time or the second time. Your only memories will be of silence, desolation and discomfort. But you will learn to like it. You will learn to long for it.

There are hundreds and thousands of you people living in the cities who only know great storied homes, tall office buildings, pavements, hurrying taxies and trains, congestion and confusion. Leave your alarm clocks, your telephones, your door-bells, your elevators and street cars. Forget your schedules and appointments. Leave all man made contrivances and the crowds and come out here.

Out here there is a stillness and quietness you of the city never knew about; you never knew the stars could be so close to earth as they are out here; you never knew there could be such cool, fresh winds, freed from the last trace of smoke and grime; you never knew the utter peace and silence the desert can give.

Here you are infinitesimal and yet you are big. You are akin to all creeping and all towering things. You who are egotistical will forget your egoism and you who are inhibited will leave your inhibitions behind. You will go back normal, sane and healthy.

Desert Not Forbidding as it Looks

At first sight it *is* forbidding, but you will grow to love it; certainly those of you will who have no love for the grime and hurry and competitive struggle of the city. There's room here away from prying eyes, and here you may be yourself, conventions and formalities dropped; there is no one to say where you must go or what you must do. There are no signs "Keep Off The Grass", "One Hour Parking Limit", "Smoking Prohibited", "Exit", "Bargain Sale", "No U Turn", "Slow Down", "Stop". There are no ushers, no doormen, no clerks or servants. You must be sufficient unto yourself. The country is all yours and you are on your own; you may come and go and do as you please and there will be no neighbor with lifted, questioning eyebrows. If you want to spend a whole day squatting and digging in the dirt for fossils, there will be no one to call you "queer". You may hike and explore, camp and hunt, wear your old mismated clothes, and when duty calls, go back refreshed to the shams and conventions of civilization.

This desert of which I speak is the great desert triangle, it's peak in north central Oregon, it's southeastern corner at the mouth of the Pecos River in Texas, and it's southwestern corner touching the Peninsular Range of southern California. It comprises part of Oregon, some of western Idaho, Nevada, Arizona, Utah, New Mexico and part of California. And it is the northern part of this huge triangle that is our hunting ground; ground that we have found of absorbing interest and learned to love.

Desert a Conglomeration of many features

The word "desert" by no means indicates sand dunes and nothing but sand dunes. Rather it is a pleasant country made up of plains and plateaus, hills and mountains, canyons, lakes and great dried up lake beds and playas, springs and small streams, even small forests in canyons and on favorable sides of mountains below the timber line and above the region of drouth. But much of it is great barren stretches of plains and hills that support no vegetation except the dry looking verdure of sage and rabbit brush. Some of the dry lake beds are edged by coarse grasses, dried up by the drouth of midsummer. The occasional trees are clumps of aspen and cottonwood by some spring or small stream; and from far off

your eyes can follow these meandering streams by their inevitable fringe of willows. Around the lonely farmhouses you invariably see the Lombardy poplar, tall and graceful, but frequently half dead from age or lack of water. From many miles away you see the blotch of dark green (black, it looks) and you know that here at least you are not entirely alone. Scattered junipers, hills capped with rim-rock, basalt and lava outcroppings on their sides, eroded bluffs of painted sedimentary layers; such is our desert—a rough, rather wild and wholly desolate country.

Of course it is not all desert. There are some small, fertile cultivated areas around streams and springs, occasional meadows down in the low valleys—a welcome green after the grays and tans of the desert. And occasional town and even small cities.

Irrigation may some day reclaim this land, but until that day it is desert and a place we never tire of exploring.

There are large lakes, Lake Abert, Harney Lake, Malheur Lake in Oregon; Pyramid Lake, named by Fremont, with its peculiar calcareous tufa formations, pyramid shaped, the site of prehistoric Lake Lahonton; and Winnemucca Lake, named from an Indian chief. These last two lakes are in Nevada.

There are great dried up lake beds, deserts now; Alvord Desert in Oregon, Smoke Creek Desert, Black Rock Desert, Carson Sink, in northern Nevada; some with beds as smooth as pavement where you may drive in any direction, but do not try it too early in the spring. After the winter rains they are often bottomless and tales are told of strange disappearances.

There are many canyons, wild and intriguing: Black Rock canyon, Succor Creek canyon, Owyhee canyon, full of interest and mystery.

There are vast stretches of rolling, sage covered hills as far as the eye can see, but always in the distance a lofty smoke-blue range of mountains.

There are great majestic faults: Abert Rim, the most westerly one; Hart Mountain, a greater fault than Abert; and then far off to the east the Steens Mountains. Mostly high, precipitous scarps facing the west, sloping away more gently to the east. Mute evidence of the violent changes that have taken place in the distant past.

There is volcanic country with recent craters, as the Jordan Craters in eastern Oregon; Craters of the Moon in western Idaho; lava flows of smooth, swelling pahoehoe lava and the rough, jagged AA lava, volcanic chimneys, ovens, bombs scattered about. On Succor Creek, Oregon, there are volcanic chimneys that tell the tale from beginning to end of how "thunder eggs" here were formed, those missels of the legendary Indian Thunder Gods.

There is a cave in Malheur County, Oregon, where you can walk a half mile and then take a boat (now gone) and row another half mile all underground.

There is a hot borax lake in Harney County, Oregon, in which it is reported that a new species of fish have been discovered living in the hot waters, and an old house built of borax blocks many years ago by the Chinese.

There are petrified remains of ancient forests, whole logs laying where they lay thousands of years ago. There are fossil beds containing the bones of animal and bird species long gone from the face of the earth. And beds of diatomaceous earth and shale full of rare plant fossils.

There are rich mineral hunting grounds for the student of mineralogy and the collector; canyon washes, fields of agate, hills where you dig for concretions and for thunder eggs, old abandoned mines and mines still in operation with long dumps that can occupy a collector many a long day.

In Klamath, Lake and Harney counties, Oregon, there are shallow caves and shelters where one can dig for relics of ancient man, woven tule matting, arrow points, skining knives, tools and implements of many uses. And rocks on whose smooth surfaces are picture writ-

ings of an earlier race of Indians who lived here before the coming of white man.

There are huge, queer bee-hive shaped cones and upright pipes through which seeped the waters of long extinct springs.

Abandoned Homes in Desert

There's an old roofless house, made of stone, with tiny loophole windows, built long ago for protection against the Indians, nestled up against the broken out side of a crater. There are occasional sod houses and loghouses, corral fences of woven brush, a whistling well, ledges of iridescent obsidian and plains covered with obsidian nodules that glitter in the sun, hot springs, the Hart Mountain antelope reserve. And there are large unexplored areas with their cowboy and sheepherder tales of beautiful mineral specimens, prehistoric bones, Indian caves, queer underground rumblings, lost gold mines.

Don't say that the desert is without interest.

And here and there all over the desert you see the abandoned homes of early homesteaders; homes built during a wetter season than now prevails. The desert winds have played strange pranks with these houses, leaving them grotesque and ridiculous. Here is one with the cellar now the first floor, the ever prevailing winds have blown away the sandy soil into which the builder dug. Here is one where the winds have scooped away the sand from under the four walls and they have settled, foot by foot, the floor protected from the winds has remained in place, but with the settling of the walls it has seemingly risen half way to the ceiling. Outside stands a cased in well, it's curb high above one's head, its casing a tower. The ground upon which the builder built was then many feet above where we now stand. Another house rests in a wind scooped hole, the surrounding dunes level with the roof, tilted and awry, the home of packrats and owls.

Utter desolation!

No, not utterly desolate—over yonder tall majestic cliffs purple in the sunset; the ever prevailing peace and quiet. No, it is not desolate. It is just that man pitted

Towering things—Virgin's Castle, Virgin Valley, Nevada

himself against Nature and lost. Soon these houses will crumble and fall, the restless winds will cover up the last traces of man's work and it will be as it was in the beginning.

LURE OF THE DESERT

There are little animals, odd plants, strange forms and structures of rock, things large and small that you don't know exist. Not exotics, as those from the jungles which will invariably find their way into picture and print for their very exoticness, but little homely things, descendants of times past, with their little homely stories to tell.

It is out here that you can invision the past, if you have a smattering of geology; at one time all this was ocean bottom; later these valleys were far, far below the surface while those high, flat plateaus were the country's level, here and there were great lakes and streams, larger than we imagine perhaps, mountains and plains of luxuriant forests of a kind now long extinct in these regions and indicated only by scattered fossils. Many mountains have entirely disappeared that were once towering above us and others have risen to take their place. A different breed of animals walked these lands in that time and the climate was warmer and more moist.

Understand the desert and you will love it. Learn to look for the rocks and minerals and fossils that tell their stories of past ages, and you'll love it still more. You will have a consuming desire to leave civilization as it now is and to hunt and hunt—not with the gun, but with your camera, your geologist's pick and hammer and your magnifying glass. And not for gold, that only brings grief, but for the knowledge you can gain. And you will return with your rocks, your minerals, your fossils, your pictures and memories to tell you more and more through the long Winter evenings of things as they once were.

Some day you will have reached the stage when you can sit by the side of a little red plant, it's leaves forming a rosette on the hot, dry earth, it's long, long root reaching down to moisture you never knew was there. You will marvel at the wisdom and foresight of Nature which arranged all this, and you will begin to understand—just a little. You are getting back to the way you were meant to be, but you still have a long way to go. It is all there like an open book for those who wish to read. Each little plant, each tiny insect, every little rock, even the grains of sand, have a tale to tell. You can open the book, read and study it, become absorbed in its story of past and present, or you can leave it closed and pass by.

To most of you it *is* a closed book, but as you wander and think and see, more and more will the leaves unfold. Whereas now you stumble and read haltingly, as a little child, and much is beyond your comprehension, some day it will all be clear, and with the same knowledge you have gained, you will be at peace with yourself and the world, for you will understand life and life's values.

"Come unto me all you who are weary and heavy laden and I will give you rest."

RECENT FINDS OF INTEREST

A pocket in emery, a geological feature unheard of heretofore in the emery regions around Peekskill, N. Y., was recently uncovered at the September Emery Mine, near Peekskill, by Gaetano DiRubbo, the operator. The pocket, which extended for 8 feet and was 2 feet wide and 1 foot high, was filled with loose ¼ to 3 inch emery "pebbles" and clay sand.

Dr. A. C. Worth, of Albany, N. Y., ran across some very interesting specimens of thin platy celestite crystals near Schoharie, N. Y.

Some extra large flattened rock crystals have been found in limestone in a road cut at Sprakers, Montgomery, County, N. Y., by Dr. L. Prescott Brown, of Albany, N. Y.

A CHLOROPHANE OCCURRENCE NEAR EAST HAMPTON, CONN.

By PETER ZODAC
Editor, Rocks and Minerals

When Mr. L. W. Little, of East Hampton, Conn., announced recently that chlorophane had been found near his little city, it was not necessary to invite the writer to visit the locality nor even to send him specimens. The announcement alone was more than sufficient. For Mr. Little, who is a member of the Rocks and Minerals Association, is one of those rare individuals who is very modest in announcing finds, especially if he has anything to do with them.

The chlorophane was found July 28, 1939, by Richard A. Schooner, a young friend of Mr. Little's, who is also a member of the Association. It was Mr. Little who interested Richard in minerals and the latter reacted so enthusiastically that for many weeks he combed the area of his neighborhood in search of mineral specimens. In this way he ran across the chlorophane.

How the Mineral was Discovered

Let Richard tell about the find in his own words: "On July 28 of last year, I visited the locality in search of almandite crystals but finding none turned instinctively to the bulk of a protruding ledge which was honeycombed with a maze of small cavities, each lined with a number of intergrown crystals of feldspar. After working fiercely for a while, I managed to extricate several small crystals, the rest shattering to splinters along their cleavage planes, furnishing nothing in particular except a few cuts and scratches. However, I noticed that the loose kaolin which filled the pockets to some extent was intersected with elongated ½ inch veinlets of a reddish material which also displayed a tendency to fragmentate into small cleavages of an octahedral nature upon the application of sufficient pressure. Quite a large quantity of the red, and a small amount of white, were present and all that was immediately available was collected. On subsequent visits at irregular intervals more of the material was procured; Mr. Little and Gilbert Maton, the latter a friend of mine who is also a mineral enthusiast, joined me."

Location

The occurrence is on the south side of a very long rock cut which borders both sides of the single track N.Y., N. H. & H.R.R. (Air Line Div.), slightly over a mile east of East Hampton, a village of 2600 (1930 census) in the south center of the state. The rock cut is at least 1,000 ft. long and is the first long one along the track east of East Hampton. The geographic location of the occurrence is N. Lat 41° 35', W. Long. 72°29'.

Geology

The rock in the cut, at least the west end for hundreds of feet as the entire length was not examined, is mostly mica schist with small pegmatite dikes penetrating it. The chlorophane occurs as a small vein, 1 inch wide, in a 2-foot pegmatite dike, 8 ft. off the ground and about 50 ft. from the beginning of the cut.

Due to the rocks being heavily coated black from the smoke of passing locomotives and to some extent, also, to weathering, it was not possible to make as thorough an examination as the occurrence warranted. Furthermore, as the result of much work having been done on the vein by Richard and Mr. Little, a narrow cavity one foot deep was present which made it very difficult to extract specimens of chlorophane even though a 15-inch drill was used. The extraction of further specimens may not be possible unless blasting can be done—a process which the railroad company would never allow.

The chlorophane varied in color from colorless to deep red and could be extracted, chiefly, in small specimens. Only in rare cases could it be had in matrix which often was so friable it parted into many pieces.

Chlorophane is a variety of fluorite which when heated phosphoresces green. The best way to show this phenomena is to put a specimen on a hot stove, in a dark room, when within a few seconds it

will glow with a bright greenish color. The chlorophane from East Hampton glows the brightest of any the writer has ever seen.

The name chlorophane comes from two Greek words meaning *green* and *to appear,* or *pyro-emerald.* [1]

Mineralogy

A number of minerals occur in the pegmatite vein but aside from fluorite and staurolite, they are all of poor quality. The minerals present are as follows:

Albite: white, as a constituent of the pegmatite.

Fluorite (*Chlorophane*): From colorless to white to red to deep red. The colorless to white fluoresce pale blue under the argon bulb; a brighter blue under the detectoscope. When heated, all colors glow greenish but the dark ones glow the brightest of all.

Gypsum var. Selenite: Tiny, slender, colorless rosettes on a limonitic joint of pegmatite.

Limonite: Very common as brownish stains on minerals and rocks.

Muscovite: Small flakes in pegmatite.

Pyrite: *Common as small crystals in* pegmatite.

Pyrrhotite: Common as tiny bronzy masses in pegmatite.

Quartz var. Milky: As a constituent of pegmatite.

Staurolite: Common as flat, black crystals in pegmatite.

Tourmaline: Small black crystals in pegmatite.

Acknowledgments

The writer is deeply grateful to Mr. Little for the announcement of the find, donation of many specimens, and for guiding him to the locality on Aug. 11, 1940; to Mr. Ken Pugsley, of Pawling, N. Y., who accompanied him on the trip and through whose efforts more specimens were obtained, and to Richard A. Schooner for the information as given above.

Incidentally Mr. Little has a very fine collection of golden beryl crystals from the Slocum quarry near his city and collectors who may find themselves in his vicinity should call on him to view it. Mr. Little resides at 138 Main St., East Hampton.

1 Dana's *System of Mineralogy,* 6th edition. John Wiley & Sons, Inc. P. 163.

MARYLAND EXPEDITION YIELDS 1,000 SPECIMENS

With a collection of approximately 1,000 rock specimens illustrating a wide variety of geological processes and materials, Bryant Mather, assistant curator of mineralogy, has returned to his post at Field Museum of Natural History, Chicago, Ill., after a three months' expedition in the region of the Catoctin Mountain-South Mountain uplift in Maryland. This is the geological unit bounding the Cumberland or Shenandoah Valley in the East.

"Data derived on this expedition from field observations and structural readings of several thousand outcrops have added greatly to the understanding of the structure and the age relations of this geologically complex and important region," said Mr. Mather on his return.

Addition of the material obtained to the geological collections of Field Museum not only marks the first time Maryland has been extensively represented in this institution, but also makes possible the exhibition of a number of geological phenomena hitherto not illustrated.

Mr. Mather is a member of the Rocks and Minerals Association.

A MESOLITE LOCALITY IN OREGON

A white mineral occurring in western Oregon and which has been called natrolite scolecite, and thomsonite, has long intrigued collectors in this State. Specimens sent to the offices of ROCKS AND MINERALS by Harold Printz, of Roseburg, Oregon, have been examined and identified as mesolite. Because of the interest it has manifested among collectors and because it may represent the first known occurrence for the mineral in the State the mesolite is of more than passing interest.

HISTORY

The locality has been known to Oregon collectors for many years. Mr. Printz became interested when he found that the mineral would take a nice polish. It is due to Mr. Printz, who is a mineral collector, a dealer, and a member of the Rocks and Minerals Association, that this very interesting zeolite is brought to the attention of our readers.

LOCALITY

The locality is on Mt. Pisgah, 3 miles east of Goshen, in the central part of Lane County. Goshen is 7 miles south of Eugene the largest city in the county. The Willamette River borders Mt. Pisgah on tne west and south. The geographic location of Mt. Pisgah is 44° N. Lat., and 123° W. Long.

GEOLOGY

Basalt is the predominant rock on Mt. Pisgah and the mesolite occurs in this rock. The basalt has never been quarried and it apparently underlies a good part of the mountain as nodules of mesolite may be picked up on the slopes. These nodules have weathered out of the basalt and are found exposed on the surface of the ground. Very little soil is present in the zeolite area which is estimated to be about 1,000 acres in extent; this estimate, however, is open to argument.

Mt. Pisgah is 1,500 ft. high, practically treeless on its lower slopes though some fir trees can be seen on the north and east slopes to the top. Where the mesolite occurs, in a draw[1] running southeast off the foot of the mountain, there are a few scrub oaks and many poison oak clumps. Zeolites are also found imbedded in rock in the creek bed and quite high up on the mountain ridge to the west and east of the creek.

Mt. Pisgah is very old and erosion has rounded it considerably. The main creek flowing down the mountain descends on a 20% (?) grade; it rises about 2½ miles north of the Willamette River. Various owners have fenced in their respective plots of land on the mountain which are used for stock grazing.

MINERALOGY

Not many minerals occur here but those that do are of interest and most of them are of good quality. These are:

Calcite: Clear to white crystals.

Heulandite: Characteristic coffin-shaped crystals with one face showing the usual pearly luster, milky to glassy-white in color As a rule the mineral occurs as tiny crystals in small pits in the crust of mesolite. Calcite, heulandite and mesolite are frequently associated together.

Mesolite: This is the predominant mineral of the locality. It is snow-white in color, acicular, compact radiated-fibrous, sometimes so compact as to appear massive, and all having a pitted, earth-stained nodular crust. On some specimens the exposed mesolite (crust) has a porcelain-like appearance. The mesolite takes a fine polish; its hardness is 5. It is found chiefly as loose specimens in the main creek and on its slopes and especially in the side draws.

Dr. Clifford Frondel, of the Department of Mineralogy, Harvard University, who made a thorough examination of the mineral, reports his findings as follows:

"The acicular zeolite from Lane Co., Oregon, has proved to be mesolite. The beta index of refraction for white light is 1.505, and the birefringence is very low (ca.0.001). The specific gravity, measured by the microbalance is 2.26. These data distinguish the material from scolecite, natrolite, thomsonite and pectolite. An X-ray rotation photograph about

1—A draw is a shallow gully.

the axis of elongation, or *b*-axis, also contained the special diffraction spots noted by Hay (Min. Mag., vol. 23, p. 430, 1933) as distinguishing the rotation photograph of this species from those about the direction of elongation of natrolite and the other acicular zeolites".

Quarts var. Agate: Occurs as nodules white to gray banded. A few fortification agates have also been found.

Quartz var. Rock Crystal: Small crystals in amygdaloids. Also occurs as small nodules composed of crystals so tightly grouped together as to appear like a mass of milky quartz.

The quartz minerals occur as separate nodules sometimes associated with calcite but never with heulandite or mesolite.

ACKNOWLEDGMENT

Thanks are due to Mr. Printz for all information on the locality and for supplying a large number of specimens; and especially to Dr. Frondel who very kindly examined and identified the mesolite which has been puzzling a large number of Oregon collectors.

NEW SOUND FILMS ILLUSTRATE ALLOY STEELS AND ARIZONA MINERAL RESOURCES

The addition of two new sound films to its comprehensive collection of motion picture films illustrating the activities and achievements of the mineral industries is announced by the Bureau of Mines, U. S. Department of the Interior.

One of these is entitled "Alloy Steels—the Story of Their Development," and tells the wonder-story of those special products contrived through the years in the research laboratories of the World to make possible the tough, sturdy steels demanded by modern industry. The film is in 16- and 35-mm. widths and requires twenty minutes for showing.

This film portrays the most important events in the history of the development of alloy steels, from the methods used by the ancients in adding carbon to wrought iron to the latest developments in the making of special steels. The roles taken by molybdenum, tungsten, manganese, nickel, and other metals in making alloy steels are interestingly illustrated. The film ends with views in modern steel plants and shows equipment used for the heat treatment and fabrication of steel.

The other film is entitled "Mineral Resources and Scenic Wonders of Arizona." The great natural resources of Arizona and the inspiring panorama of scenic splendor that annually attracts thousands of tourists to the State are picturized in this film, which is in 16-mm. size and which requires forty minutes for showing.

The film depicts early Indian life in Arizona and presents many scenes illustrating early mining days. Interesting views are given of the great modern plants producing copper, lead, molybdenum, tungsten, mercury, and other metals. A series of scenes depicts the electrometallurgical labobratory of the Bureau of Mines near Boulder Dam, where, among other experiments, significant work is being done on manganese.

Other views illustrate the remarkable agricultural development of Arizona, much of which has been due to the Federal program of irrigation. Views are given of great dams and irigation projects.

A series of impressive views gives glimpses of the scenic wonders of the State. A Hopi Indian dance is depicted. Panoramic views of old Tucson as it appeared in 1859 and as it is today are presented. The fine collection of buildings comprising the University of Arizona is shown. Views of Phoenix, the State capital, are given, and the activities on a "dude" ranch are depicted.

Copies of these sound films in the sizes noted are available for exhibition by schools, churches, colleges, civic and business organizations and others interested. Applications for the films should be addressed to the Bureau of Mines Experiment Station, 4800 Forbes Street, Pittsburgh, Pa. No charges are made for the use of the films although the exhibitor is expected to pay the transportation charges.

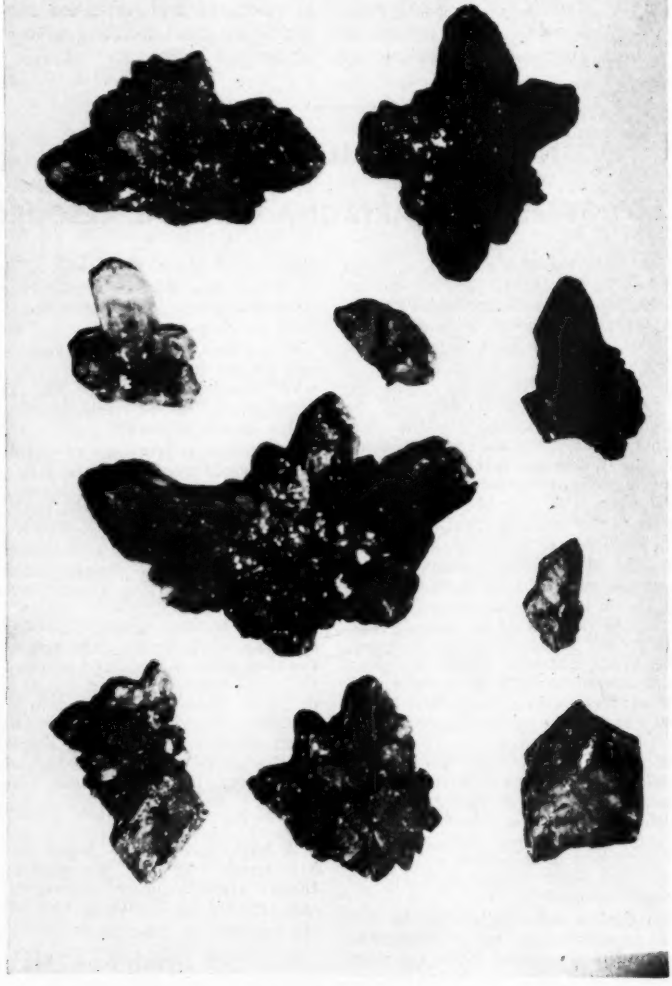
A huge mass of red jasper, estimated to have weighed 200 lbs, was uncovered in the Braen's traprock quarry, Hawthorne, N. J., and reported by E. Wirtz, of Hawthorne.

Nice rock crystals have been found in Pawling, Dutchess County, N. Y., by Ken Pugsley, of Pawling.

GYPSUM CRYSTALS FROM VICKSBURG, MISSISSIPPI

By DR. A. C. HAWKINS

In the spring of 1940 there was abundant rain over the Mississippi "Delta." The delta land is here nearly 60 miles across from east to west, seemingly perfectly level, covered with broad corn and cotton fields and large patches of tall cypress timber which surround lakes which fill abandoned river meanders.



Gypsum Crystals from Vicksburg, Mississippi

Vicksburg, on the bluff just to the east, looks out over a level sea of treetops interspersed with broad, curving stretches of muddy water. We had inspected the wonderful battlefield which surrounds the city in a seven-mile crescent, and had beheld the great Mississippi bridge floating on a sea of fog, and visited the new oil field at Yazoo City where there was little else but a sea of mud.

On Route 61, at a place about 4 miles north of Vicksburg, we stopped in a deep road cut where nearly horizontal strata of Tertiary sand, clay and marl are exposed. The marly beds were the first source of interest, as they were filled with many kinds of small marine shells which were weathering out of the bank. Presently we noticed some glassy-looking objects encased in greenish mud which had slid down the slope from a marl bed up above. We tried to step on the bank, but immediately sank into some of the stickiest mud we had ever seen. With the aid of sticks, a number of individual crystals and groups were obtained. These proved to be gypsum of the selenite variety.

The crystals show nothing but the ordinary combination of prism, pinacoid and pyramid so typical of the species. They are arranged, however, in rosettes which give the groups an attractive appearance. The intergrowths are evidently due to repeated twinning of the ordinary swallow-tail variety. All of the crystals are etched, having been attacked by the free water in the marl bed, which is not at present saturated with calcium sulphate. The largest crystal group in the illustration is 4 inches wide and 2½ inches high. So far as can be learned, this is the first recorded find of a crystallized mineral in the State of Mississippi.

MANY MINERALS USED IN WELDING

A long list of minerals is used in the welding of metals, and each of them has its particular function, the U. S. Bureau of Mines points out. This is in striking contrast with the time when the blacksmith was the only person in town who did any welding. The village blacksmith's recipes and the materials he used to assist welding were simple and no one in the mineral industry looked to welding as an important outlet for his products. With the gas torch, and then with electric welding, the picture has changed. Mines such as those producing rutile send most of their output into the welding industry. Welding has become an indispensable method of fabricating metallic articles and machinery.

Fluxes to dissolve oxide coatings from the metals being welded were once the whole stock in trade of the welder. Now the coatings on welding rods for electric welding carry not only fluxes, but arc stabilizers, thickeners or thinners for the welding slags, deoxidizers for protecting oxidizable metals from attack by air, alloying elements to give stronger welds, binders to hold the rod coatings together, reinforcers like asbestos fibre to prevent cracking of the coatings and many other functional ingredients.

The fluxing minerals such as borax, quartz flour, oxidized manganese minerals, fluorspar, and numerous chemical derivatives of simple minerals, like lithium carbonate, ferromanganese, potassium chromate, and scores of others, all find their market. Asbestos not only acts as fibrous reinforcer for coatings, but supplies magnesia and silica for building protective slags.

To the producer of industrial minerals the reasons for using various minerals in welding are of interest. Many of the questions the mineral producer needs to have answered are to be found in Information Circular 7121, "Minerals Used in Welding," by O. C. Ralston and M. W. von Bernewitz. Copies of this report may be obtained from the U. S. Bureau of Mines, Washington, D. C.

A SELENITE LOCALITY IN MARYLAND

During February,1940, while examining the terrain around Fort Washington, Md., where selenite had been found, Douglas Graham, a member of the Rocks and Minerals Association, of Takoma Park, Md., ran across a new occurrence for the mineral. The mineral occurs in crystals of such good quality that it deserves more than passing interest.

LOCATION

Fort Washington (in the southeastern part of Prince Georges County) is an old army reservation (no town—just a fort) at the junction of the Piscataway Creek and the Potomac River, almost opposite Mt. Vernon, Va. Its geographic location is N. Lat. 38° 42; W. Long. 77° 05'.

OCCURRENCE

The original locality[1] for selenite at Fort Washington is in sand and gravel; the sand gets very hard and collectors often have difficulty in getting crystals out whole.

The new find is in real gooey red and gray clay about 200 yards upstream (up the creek) from the old locality.

While examining the terrain, Mr. Graham noticed that a little material from the bank had fallen down. Out of curiosity he casually examined the fallen material and was surprised to find two or three small selenite crystals in it. Further examination showed more crystals, but it was on digging into the bank that crystals in quantity were found. The crystals were noted as occurring in little pockets 2 or 3 inches away from each other.

The hill containing the selenites is about 100 feet high, almost vertically. Only one crystal-bearing clay bed is present which is about 2 or 3 feet thick and 2 or 3 feet above the creek. The crystals contain much clay and it was found that by soaking them in water over night that most of the clay would disintegrate and fall to the bottom of the container.

The crystals are colorless, transparent (though slightly clouded) and vary from tiny up to those 5 inches in length. Some of them contain clay inclusions. The crystals are generally single individuals though many have tiny crystals, also selenite, attached to them. One 5 inch specimen consists of two crystals in parallel growth attached to each other in such a manner that they evidently butted against each other during the process of their formation; each crystal is slightly offset.

1. *Minerals of the District of Columbia and Vicinity, by Dr. Titus Ulke.* ROCKS AND MINERALS, Feb. 1936, p. 27.

J. WILLARD BAKER

It is with much sorrow that we have to record the death of J. Willard Baker, Secretary of the Manville Jenckes Corp., of Manville, R. I., who passed away at his home, "Maple Heights," West Wrentham, Mass., on May 14, 1940. He is survived by a daughter, Miss Louise.

Mineralogy was Mr. Baker's chief source of recreation, a hobby which he started at the age of 13. He always enjoyed talking about minerals to students, teachers, collectors and to any one else who showed interest in the subject. Even in his failing health he was lecturing and exhibiting at hobby shows. He never felt weary when he was with his minerals and could share his interests in them with others. It has not yet been decided what disposition is to be made of his very fine collection which embraces 3,750 catalogued specimens from all over the world.

Mr. Baker was a member of the Mineralogical Society of America, the Boston Mineral Club, the Agate and Mineral Society, the New York Mineralogical Club, and the Rocks and Minerals Association.

NEW ENGLAND NOTES

Conducted by Rudolf C. B. Bartsch

36 Harrison St., Brookline, Mass.

Orange, Mass.... In this town, near the border of Warwick, Mass., a new explorative operation was started this summer. A small pegmatite lens has been nearly completely blasted out and the operation has been stopped. Some interesting minerals have been found. Fair beryls of aquamarine and golden color have been taken out. The quartz is quite similar to the quartz at the famous old Royalston locality, namely a compact granular mass in which most of the beryls occur. Black tourmalines with excellent terminations are also present in this granular quartz, several inches long and an inch or more in diameter. Large, deep red garnets with hightly polished faces occur in the same matrix. Muscovite of rather poor quality, and excellent biotite, some of whose single plates are deep brown in color and very pure with practically no inclusions, are common. A small amount of magnetite mixed with pyrite is also present.

A good road has been constructed from the main highway to the top of the hill and it is an easy drive for any car right up to the workings.

Warwick, Mass. Less than half a mile out of the center of this little village, on the dirt road past the school house off Route 78 from Orange to Warwick, there is at a very sharp bend in the road an interesting outcrop. On the left side, the outcrop has numerous cavities lined with garnets and quartz crystals and it seems that with a little hard work some very interesting material might be found. At the right side of the road, about 50 feet in, on the top of the ridge, there is considerable amount of epidote and quartz with crystal groups in cavities. The epidote crystals are small and transparent of a light green color. Some garnet is also present at this location. The spot appears to have had some explorative blasting a great many years ago.

Redstone, N. H. At this locality there is an important granite quarry which is still more or less active. Permission to collect can usually be obtained at the office. The minerals to be had are not many, but those that are to be found can be had in excellent specimens, at times real museum pieces. There are numerous cavities in the granite and these contain smoky quartz, microcline, fluorite, and at times amethyst, in fine crystal groups. The smoky quartz is in excellent quality, of fine color and transparency, and has been found up to 3 inches in length and an inch or more in diameter. The microcline crystals are abundant and can be had in large groups of terminated crystals. The fluorite is usually in fine transparent crystals, mostly white, but of course in various shades as well. Amethyst, when found, is in very good color but is not particularly common.

Plainfield, Mass. This locality is famous for its fine colored massive rhodonite. The mineral varies in color from light grey and brown to a deep pink. Boulders which have been exposed to the elements and the seams in the main ledges are jet black due to alteration of the rhodonite. This black coating is up to two inches in thickness and is mostly pyrolusite with some psilomelane. This is the best season of the year to visit the locality as operations usually cease in the late summer.

BIBLIOGRAPHICAL NOTES

Mineral Identification Simplified

by Orsino C. Smith, Wetzel Publishing Co., Inc., Los Angeles, Calif., pp. 271, $3.50.

This handy little book should be of real aid to the amateur mineralogist and collector, as well as to many professional geologists, who, it must be admitted, often do not know their minerals as they should The first 70 pages consist of descriptive introductory material for use in the 200 pages of tables which follow. The simple tests such as color, hardness, streak, specific gravity, luster, cleavage, fracture, solubility in HCl, and so on, are first described. Then more difficult tests concluding with a qualitative chemical analysis. For many of us the first few qualities are so well-known that they need no description, but for some of the newer collectors this will be useful. For all of us the later tests, such as the analysis, may at times be very valuable and convenient to have at hand. Special tests such as blowping, closed and open tube tests are here quickly available for reference.

The remainder of the book is occupied by a series of tables in which all the minerals known up to 1940 are listed in 15 groups, based upon the specific gravity. The minerals are then arranged in these groups in order of their hardness, the hardest first. Successive columns then give the specific gravity, fusibility, effect of HCl, color, streak, luster, cleavage, fracture, crystal system, index of refraction, name, composition, and remarks concerning definitive tests. All of the minerals listed are legitimate minerals which can easily be looked up in texts, while enough description is to be found in the tables themselves to eliminate much unnecessary reference to fuller mineralogies.

As most amateurs very rightly prefer minerals which are more than microscopic, it is possible for them to make the necessary tests of gravity and hardness on their specimens. The professional, who specializes so often in rare minerals of which but little is to be had, will find the tables useful for reference after gravity determinations, especially if he uses the Berman Density Balance. Smith has covered the contingency of overlapping specific gravities and broad ranges by listing many minerals more than once. There are over 1600 different minerals listed and the more important and common ones shown in heavier type, enabling a rapid elimination of the minerals the amateur collector is unlikely to come across. In criticism, about the only complaint to be made is of the small type and the crowding of the tables. Had they been better spaced it would be more easily used, but would, of course, have made a much larger book, far less handy than the present volume with its flexible cover. Since it is a book for laboratory, rather than field, use anyway, the pocket size does not seem so essential.

F. H. POUGH.

Minerals of Maryland: By Charles W. Ostrander and Walter E Price, Jr.

It is most gratifying to announce the appearance of this very interesting and very important bulletin and our congratulations are extended to the authors and to the Natural History Society of Maryland that this has been made possible. Maryland, though small in size, is large in the number of its minerals many of which have made the state famous. It is interesting to note that molybdenite was first discovered on the North American continent in 1811 at Jones Falls, Baltimore, Md.

The bulletin is divided into a number of sections the largest of which takes up the localities by counties, pp. 7-67; then follows a check list of minerals, listed alphabetically, with their principal localities, pp. 68-78; fluorescent and luminescent minerals with their localities, pp. 79-81; meteoritic falls and finds, p. 82; bibliography and references, pp. 83-88; index to mineral localities, pp. 89-92.

This very desirable bulletin of 92 pages with 20 illustrations is issued by the Natural History Society of Maryland, 2103 N. Bolton St., Baltimore, Md.

Handbook for the Amateur Lapidary: By J. Harry Howard.

That devotees to the fascinating hobby of cutting and polishing minerals are now numbered in the thousands, we can cite no better proof than to call attention to the printing of the second edition of the *Handbook for the Amateur Lapidary* which has just been released. Three thousand copies of the first edition were issued and distributed in every state of the Union and in 25 foreign countries. Three thousand copies of the new edition have also been printed. The only change in the new edition is the dropping of all advertisements. Price is the same as before, $2.00 per copy of 141 pages. Copies are obtainable from the author, J. Harry Howard, 504 Crescent Ave., Greenville, S. C.

Mr. Howard is also the author of *The Working of Semi-Precious Stones* which came out in 1931 and was the first printed information on the cutting and polishing of minerals to make its appearance in the English language. Three thousand copies of this publication were printed and distributed all over the world; the publication has long since been out of print.

It was ROCKS AND MINERALS which printed and distributed *The Working of Semi-Precious Stones* and which for many years had also printed as a regular feature in the magazine, The Amateur Lapidary Department. Other magazines may now feature lapidary departments but it was ROCKS AND MINERALS which started it.

Selected Mineral Specimens: This is the latest price list of New England's largest mineral dealers. Within its 50 pages are listed hundreds of attractive mineral specimens, mineralogical supplies, collections and books. It is a vest size edition of a catalog, being 7x3½ inches in size, so that it can be conveniently carried in a coat pocket. Oh, yes, the price list has a number of interesting illustrations.

There is a charge of 10c for a copy which sum will be refunded in the form of a 10% discount on the first purchase. Issued by Schortmann's Minerals, No. 6 and No. 10 McKinley Ave., Easthampton, Mass.

COLLECTOR'S KINKS

Collectors are cordially invited to submit notes from their experiences and so make this department of interest to all.

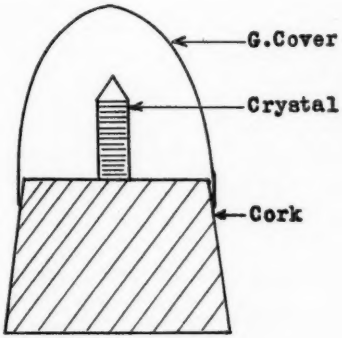
A Unique Crystal Mount

In most any collection, small loose crystals or small groups of crystals are of frequent occurrences. These little specimens look out of place, ordinarily, when compared with the general run of minerals and they are apt to get lost, too.

Mr. John A. Grenzig, the veteran dealer and collector of Brooklyn, N. Y., has solved this problem in a very satisfactory manner. His crystals are mounted on large corks which have glass covers. The covers appear to be large vials with rounded bottoms. The crystals either rest loosely on the corks or are inserted in depressions made for them. The labels are attached to the bottom of the corks.

These are such unique mounts and very good ones, too, that we are glad to call them to the attention of our readers. The corks are easily obtainable but the covers may present some difficulties. Laboratory supply houses carry such a large array of bottles and vials that no doubt the covers may be obtained from them

The accompanying sketch shows a crystal mount



Grenzig Crystal Mount

Another mount featured in Mr. Grenzig's very fine collection is one of plastic wood. These are easily made by filling small paper trays with plastic wood which when nearly dry have the mineral specimens inserted in them. When they are thoroughly dry, the paper is torn off and then the entire surface is painted with black lacquer. A label is attached to the bottom.

This is a better mount than that made of plaster of paris as it does not chip nor break.

. . Collectors' Tales . .

By PETER ZODAC

Mineralogy Has Charms

Some weeks ago a party of collectors, of whom Dr. A. C. Worth, of Albany, N. Y., was one, was visiting localities in Schoharie County, New York. One of the localities visited was a celestite-pyrite occurrence on the Veenfliet farm, alongside Schoharie Creek, on the outskirts of the village of Schoharie. The locality was just 10 feet from the creek's edge on a narrow terrace 5 feet above the water. The minerals occurred in a dark gray shale capped by limestone. The outcropping rock had a vertical height of 12 feet, and extended possibly 200 feet.

It so happened that a herd of about 30 cows chose the very spot where the minerals occurred to spend the afternoon. So friendly were the cows, however, that they persisted in remaining on the narrow ledge apparently to see what was going on much to the annoyance of the collectors who at times had to actually push them out of the way.

Just as the collectors were about to leave, Dr. Worth, who was at one side intensely studying a map, felt a touch on his shoulder. So engrossed was the doctor that he did not look up but assuming it was one of the party began to read aloud for his benefit.

"Here is this locality, here is the creek, here is Veenfliet's house, here is Schoharie, and" . . . raising his voice louder—"there's north!"—pointing at the same time in that direction.

Then turning around to see who the collector was, Dr. Worth stopped abruptly and stared in astonishment. For the wet nose of a contented cow was resting serenely against his shoulder!

CLUB AND SOCIETY NOTES

Plainfield Mineralogical Society

A regular meeting of the Society will be held on Tuesday, Nov. 12th, 1940, at 8:00 p.m., in the Plainfield Public Library, Plainfield, N. J. The guest speaker will be Mr. D. Dana, of the General Electric Co., who will talk on fluorescence and fluorescent lamps. A number of fluorescent lamps will be on display.

On Saturday, Nov. 16th, the Society will hold a field trip to the Sparta limestone quarry, Sparta, N. J. The group will leave the C.R.R. of N.J. station, Westfield, N. J., at 9:00 a.m. sharp. Mr. M. Allen Northup, of 4 Godet Place, Morristown, N. J., will be in charge.

CHIPS FROM THE QUARRY

(Continued from page 362)

4—If references are made to any printed report, book, or magazine give credit to the publication in which it appears. For a magazine, give the title of the article, its author, name of magazine, date, and page number on which article appears.

Peter Zodac